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# NASA Procedural Requirements

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## Subject: NASA Research and Technology Program and Project Management Requirements

**Responsible Office: Office of the Chief Engineer**

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## Chapter 1. Introduction

### 1.1 Background

1.1.1 This document establishes the process by which NASA will formulate and implement R&T managed or funded by NASA consistent with the governance model contained in NPD 1000.0, NASA Strategic Management and Governance Handbook. NASA manages a wide variety of R&T, including but not limited to, scientific research, aeronautics research, and technology developed for space activities. Due to this wide-range of activities, this NPR does not standardize this development into a single process but unifies the overarching management requirements for R&T. This NPR then establishes the management processes and practices available for NASA R&T activities and identifies the Decision Authority (DA) responsible to select the appropriate process.

1.1.2 Central to building this cohesive management process is the introduction of NASA R&T program and project life cycles and the identification of the Key Decision Points (KDPs) within these life cycles. Along with program and project life cycles and KDPs, this document also defines the roles and responsibilities of key personnel responsible for NASA R&T program and project management.

1.1.3 This document distinguishes between programmatic requirements, on the one hand, and management process requirements, on the other. Both categories of requirements must ultimately be satisfied in program and project formulation and implementation. Programmatic requirements focus on the products to be developed and delivered and specifically relate to the goals and objectives of a particular NASA program or project.

1.1.4 Management process requirements focus on how NASA does business and are independent of any particular program or project. These requirements are issued by NASA Headquarters, including the Office of the Administrator, Mission Directorates (MDs), Mission Support Offices (MSOs), and by Center organizations. Management process requirements may respond to Federal statute, regulation, treaty, or executive order.

### 1.2 Overview of Management Process

1.2.1 Program and project management based on life cycles, KDPs, and evolving products during each life-cycle phase are embedded in NASA's four-part process for managing programs and projects consisting of:

a. **Formulation** - the assessment of feasibility, technology and concepts, risk assessment, team-building, development of operations concepts and acquisition strategies, establishment of high-level requirements and success criteria, the preparation of plans, budgets, and schedules essential to the success of a program or project, and the identification of how the program or project supports the Agency's strategic needs, goals, and objectives.

b. **Approval** - the ongoing effort by responsible officials above the program and project management level to review

plans and performance at key decision points and authorize continuation of the effort and progression to the next phase.

c. **Implementation** - the execution of approved plans for the development and operation of programs and projects, the establishment of control systems to ensure performance to plan, and alignment with current Agency strategies.

d. **Evaluation** - the continual, independent (i.e., outside the advocacy chain of the program/project) evaluation of the performance of a program or project, and incorporation of the evaluation findings to ensure adequacy of planning and execution according to plan.

1.2.2 Program and project management philosophy at NASA reflects NASA's core values of Safety, Teamwork, Integrity, and Mission Success. All organizational elements and employees of NASA must adhere to these core values, which are repeated here for emphasis:

a. **Safety** - NASA's constant attention to safety is the cornerstone upon which we build mission success. We are committed, individually and as a team, to protecting the safety and health of the public, our team members, and those assets that the Nation entrusts to us.

b. **Teamwork** - NASA's most powerful tool for achieving mission success is a multi-disciplinary team of competent people. The Agency will build high-performing teams that are committed to continuous learning, trust, and openness to innovation and new ideas.

c. **Integrity** - NASA is committed to an environment of trust, built upon honesty, ethical behavior, respect, and candor. Building trust through ethical conduct as individuals and as an organization is a necessary component of mission success.

d. **Mission Success** - NASA's reason for being is to conduct successful space missions on behalf of this Nation. We undertake missions to explore, discover, and learn. And we believe that mission success is the natural consequence of an uncompromising commitment to safety, teamwork, and integrity.

## 1.3 Document Structure

1.3.1 This document is organized as follows: Chapter 2 defines NASA life cycles for managing R&T; Chapter 3 defines the requirements for R&T programs; Chapter 4 provides Technology Development (TD) Project requirements; and Chapter 5 provides R&T Portfolio Project requirements.

1.3.2 The Appendices contain Technology Readiness Levels (TRLs), Work Breakdown Structure (WBS), References, Definition of Terms, Acronyms, and templates for key management documents.

1.3.3 In this document, a requirement is identified by "shall," a good practice by "should," permission by "may" or "can," expectation by "will," and descriptive material by "is" or "are."

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